



First report of *Lasiodiplodia theobromae* causing dieback on almond (*Prunus dulcis*) in Turkey

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Turkey is the world's fourth-largest almond [*Prunus dulcis* (Mill.) D.A. Webb] producer. In July 2020, 10% of 2,600 9-year-old almond trees cultivars Ferragnes and Ferraduel in Bozova district of Şanlıurfa province showed symptoms of yellowing, gumming, branch and trunk cankers, and dieback. Surface-disinfected wood tissue samples exhibiting visible internal necrosis were placed on potato dextrose agar (PDA). After seven days of incubation at 25 °C in the dark, 12 similar fungal colonies with dark grey colouration were isolated. The isolates Lt01Pd and Lt02Pd were randomly selected for identification, pathogenicity, and deposited in Bolu Abant İzzet Baysal University Culture Collection with accession number BAIBU0738-0739. Fruiting bodies were stromatic, black, 150–250 µm in diameter, and irregular or globose pycnidia with an apical ostiole. Paraphyses produced within pycnidia were hyaline, cylindrical, septate, and up to 60 µm long. Immature conidia formed inside the pycnidia were initially unicellular, hyaline, and ellipsoidal, whilst mature conidia were one-septate, dark brown, and measuring 18.5–23.0 µm × 11.5–13.5 µm ($n = 50$). BLAST searches for the internal transcribed spacer of rDNA region (ITS: GenBank accession Nos. MW733864–MW733865), translation elongation factor 1- α gene (*TEF-1 α* : GenBank accession Nos. MW733862–MW733863), and β -tubulin 2 gene (*BT2*: GenBank accession Nos. MW733860–MW733861) sequences at GenBank exhibited 99.81% similarity for ITS (NR_111174) and 100% similarity for *TEF-1 α*

(AY640258) and *BT2* (EU673110) sequences of type strain CBS 164.96 of *Lasiodiplodia theobromae* (Pat.) Griffon & Maubl. Pathogenicity of each isolate on ten 1-year-old *P. dulcis* cv. Ferragnes seedlings was verified by replacing five-mm diameter bark disks of stems with the same-sized mycelial plugs. Control seedlings ($n = 10$) were inoculated with sterile PDA plugs. All plants were maintained in a greenhouse at 25 ± 2 °C. In the inoculated plants, necrotic lesions with an average length of 6 to 8 cm on wood tissues were observed within 4 weeks. Control seedlings remained symptomless. The same fungus was only re-isolated from symptomatic tissues. In California, a similar canker disease of almond caused by *L. theobromae* has been reported (Chen et al. 2013). To our knowledge, this is the first report of *L. theobromae* causing dieback on almond in Turkey (Farr and Rossman 2021).

Declarations

Informed consent This manuscript is new and not being considered elsewhere. All authors have approved the submission of this manuscript.

Conflict of interest The authors declare that they have no conflict of interest.

Research involving human participants and/or animals The authors declare that no human participants and animals were involved in this study.

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